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IV. *On the PŪRIK SHEEP of LADAKH ; and some other Animals, principally of the Sheep and Goat kind : with general Observations on the Country of LADAKH, &c. By WILLIAM MOORCROFT, Esq., in a Letter to JOHN FLEMING, Esq. M. R. A. S , dated Lek, Capital of Sarrak, April 25, 1822. Communicated by Mr. FLEMING.*

Read June 21, 1823.

In Calcutta, you desired that I would procure, and send to you, some Sheep of the Isle of Ormus, should it be in my power; which, however, it has not been. This circumstance impressed me with an idea of your conceiving the introduction of that animal into Great Britain, likely to prove beneficial to her agricultural and manufacturing concerns; and, by a natural inference, leads to a belief, that a communication respecting the domestic animals of a country, new to Europeans, may not be wholly without interest.

A cursory view of the striking difference in the tails of Asiatic Sheep suggests the notion, that this might furnish a character, distinguishing the races of this animal more correctly, than those which have been set up for this purpose; and Nature has adopted varieties in the proportion of this part, of which some both surprise and perplex the mind, in endeavouring to assign the cause of the difference. But this variation in the sheep is not more extraordinary than that existing in the Mouse genus, some varieties of which are here furnished with tails of a length, which would seem preposterous and inconvenient; whilst others are wholly destitute of this appendage.

The novelties, which have already met my view in Natural History, are so great, as to invite the introduction of details that would swell a letter to a volume, and divert me from its practical objects. A breed of sheep of *Ladakh*, (which ought, perhaps, to have precedence in mention,) when at full growth, has scarcely acquired the size of a South Down lamb, of five or six months: yet, in the fineness and weight of its fleece,* and in the

* A sample of the wool was communicated by Mr. MOORCROFT in the letter to Mr. FLEMING, who has presented it to the Royal Asiatic Society, in whose Museum it is deposited. It is of a white colour. *Secretary.*

flavour of its mutton, added to its peculiarities of feeding and constitution, yields not in merit to any race hitherto discovered. Perhaps the dog of the British cottager is not so completely domiciliated, as is the *Pūrik* sheep of this country. In the night, it finds shelter either in a walled yard, or under the roof of its master; and frequently, in the day, picks up its food on a surface of granite rock, where the eye of the cursory enquirer can scarcely discover a speck of vegetation, though closer investigation shews stunted tufts of wormwood, hyssop, bugloss, and here and there a few blades of a dwarfed grass. But the indefatigable industry of this animal detects, and appropriates, substances so minute and uninviting, as would be unseen, or be neglected, by ordinary sheep, or those of larger breeds, even in this country. Almost all the land,* round this capital, is under tillage for wheat and barley, and in lucerne; but the harvest will not have been two months off the ground, and a single blade of vegetable substance shall not be discovered; not a stem of stubble, nor a crown of lucerne. The stubble is bitten off by the common cow, the *Tho* (a hybrid, between the *Yak* male and the cow), and the shawl-goats; whilst the ass not only devours the stock of the lucerne; but, by pawing, lays bare the tap-root, of the upper part of which he, generally, gets about three or four inches.

The *Pūrik* sheep, if permitted, thrusts its head into the cooking-pot, picks up crumbs, is eager to drink the remains of a cup of salted and buttered tea, or broth, and examines the hand of its master for *lattro* (barley flour), or for a cleanly picked bone, which it disdains not to nibble. A leaf of lettuce, a peeling of a turnip, the skin of an apricot, give a luxury. The coarse black tea of China forms the basis of the nourishment of the natives of this misgoverned country; and its use is conducted with the utmost frugality. Rubbed to a powder, and tied in a cloth, it undergoes the ceremony of frequent boilings: and when it has given out the whole of its colouring matter, a process rather tedious (from the Chinese steeping the full-grown leaves in a vat, with infusion of *Kat'h*, Ext. Cat.), the residuum falls to the share of the sheep.

* The salt plains of the valley, in which runs the *Sinha-ká-bal*, or "River, proceeding from the Lion's Mouth." But these, partly left in natural herbage, contain swamps, abounding, in the autumn, with the *Fasciola Hepatica*; which, getting into the gall-ducts, kills the sheep, in winter, that have pastured upon it.

I have been minutely tedious upon their acquired habits of feeding, as introductory to the conclusion, that there exists not a cottager in Britain, receiving no parochial relief, who might not keep three of these sheep, with more ease, than he now supports a cur dog; nor a little farmer, who might not maintain a flock of fifteen, or twenty, without appropriating half an acre, exclusively, to their use. They would derive support from that produce, which now either wholly runs to waste, or goes to the dunghill in a raw, unprofitable state; whereas, by giving sustenance to the sheep, it would be animalized, and improved as manure.

This point is so well understood here, that sheep are bought in some parts of *Ladakh*, from grazing countries, in which there is no tillage, merely for their dung, &c. during winter. They are placed in small yards, of which the floor is bespread with a coating of soil, such as it is, and are fed with lucerne hay, given with such regard to quantity, that within two or three hours not a stem, nor a leaf, remains; and this is repeated in such a way, as to prevent the smallest possible waste. So soon as the stratum is sufficiently saturated with urine and dung, it is carried off, and a fresh coating is given.

To return to the *Pūrik* sheep; it gives two lambs within twelve months, and is twice shorn within that period. The clip may afford, safely say, three pounds in the annual aggregate, and the first yield is fine enough for tolerably good shawls. The sheep of the cottager in Britain would live luxuriously, in the day, on the stripes of grass carpet, which border the roads, and by keeping clean hedge bottoms. When a boy, I have accompanied Mr. Bakewell over his farm, and listened with pleasure to his details of the frugality of his management; nor have I been less gratified with the prudent economy of the Flemish peasant. But Britain and Flanders are countries, to which nature has been prodigal of vegetable productions; and what seems prudent husbanding there, would here be accounted the most lavish waste. The British farmer pays for the weeding of his crops. The *Ladakh* feeder of cattle weeds the crops of the farmer for nothing, and supports his cows and goats on weeded grass, common mallow, chenopodium, &c. without other expense, than that of the labour of women and children, whilst the animals remain in the house, and yield him fuel for the cold season by their dried excrement; and the milk gives butter for tea, butter-milk, sour curd, and *kūrūt*.

I have seen more luxuriant crops of wheat and of barley, but never crops

more regular, nor so clean as those of this country. The *Ladakh* farmer begins to work upon a soil consisting of the disintegrated materials of the granite rock: out of which, speaking of the upland terraces, the felspar, reduced to powder, in the process of decomposition, is carried by snow-water to the flat surface, bordering the banks of rivers, where it stands in beds of the finest porcelain clay. This, naturally most unproductive material, he so manages, as to cause it to yield, year after year, in unvaried succession, excellent crops of wheat and of barley, without failure, without alternation, without degeneracy! Agriculture has much to regret, that such an observer, as my friend Mr. Marshall, was not the first Briton to witness these practices, instead of an individual, whose thoughts have comparatively been little directed to rural affairs.

Few people know the full value of the saying, that "necessity is the mother of invention." In respect to some of the first necessities of life, in this country, the adage is most strikingly illustrated; but in others a neglect prevails, with difficulty reconcileable to common sense. For instance, the rivers abound with several varieties of large trout, easily taken. Food for man is dear. Polyandry is the general custom. Nearly two-thirds of the productive lands are appropriated to the support of an unproductive priesthood; yet fish are not pressed into the service of the table. Wood-fuel is scarce and dear, yet little or none is cultivated, expressly for this purpose, though the *Thuja* grows freely on some bordering mountains; the black and Lombardy poplar on stony steppes; all the varieties of willow and tamarisk, on the banks of streams; and the *Lonicera Tartarica*, dog-rose, gooseberry and currant-bush, near the base of lower rocks. The springy bog-beds, frequent at the foot of some ranges, would yield osiers in abundance, but not one is planted.

This is not the most extraordinary feature in the conduct of this extraordinary people. That, which would give all necessities, comforts, elegancies, and superfluities, exists in profusion, neglected, and uncollected, in the midst of a nation more miserably sordid and avaricious (I speak of the rulers), than any I have visited. Were I to credit the accounts of some reporters, in respect to some districts in this vicinity, I should consider the country as another *El Dorado*; but I know that the beds of the *Sinké*, the *Singté*, and of the *Shajúk* rivers, abound with gold, in oblong grains, and laminæ, detached from their matrix, and bruised, broken and flattened, in their journey down their stony channels. The governors of

Ladakh, sensual and luxurious, in their way, yet experiencing privations which they know to be such, forbid the collecting of gold in their rivers, lest their harvests of grain should be injured. It would be difficult for a logician to discover a connexion between this cause, and its effect. It is to be found in superstition, and policy, each equally absurd.

I have procured some of the sheep alluded to, and mean to increase the parent stock to two hundred, leaving them under the care of a respectable Lama, (my pupil in surgery,) for two years; at the end of which period, my journey will have been completed. Should I fall, an event by no means improbable, the Government will receive them as a legacy, without expense, under the hope that some of the individuals will be sent to Britain, and in the sure expectation that the progeny will be distributed to cottagers and small farmers, in poor and dry counties. I leave to you to estimate the national advantages, derivable from two or three millions of extra animals, supported upon produce now really waste; provided their present frugal habits of feeding be maintained, and their constitutions be not injured by delicate treatment.

The British flock-master would be delighted with the fineness of the bone of the sheep of these countries, with the spread of the carcase, the hardness of their constitution, and their aptness to fatten; but he would object to the rounded nose, and to the stickel hairs, that debase the fleeces of some of the numerous varieties of breed, in these regions. You have seen the flat-tailed sheep of Persia and of Arabia, and so have I, with appendages respectable enough; but prudence causes me to suppress the size and weight of the tails, of some of the fat-tailed sheep of the Calmucks and Kosaks. Such of their fleeces, as have come under my inspection, are little fit for any other than common cloths; and for these are scarcely desirable: but the elastic wiriness, and the glittering lustre of the fibre, retained even when dyed, render them particularly valuable for carpets. *Yar-kund* is under the greatest disadvantage for dyeing drugs; but, being well placed for the principal material, manufactures carpeting of great beauty, for the China market.

You will recollect the name of a peculiar kind of shawl, called *Asil*, or *Asli Tüs*, of a brownish colour, and must have seen cloth and blankets, in which deer-like hairs are worked up with a remarkably fine wool, in *Cáshmir*. Since the reign of Mahmúd Shah, scarcely a single shawl has been made entirely of this kind of wool, for sale, and very few even to order, on

account of the expense ; and those, so named, have been got up of shawl-wool dyed, and mixed with a small portion of the real *Tūs*. I have procured about a maund, which, when picked, will be reduced to less than half that quantity : this I purpose to forward by the first opportunity, to be tried for gloves and stockings. Neither the domesticated shawl-goat, nor the *Vígogna* (*Ovis Peruana Vecunna*) furnish a wool so full and rich to the feel ; nor has so fine a material ever yet graced a British loom.* The animal, which yields it, is one of the almost innumerable varieties of the wild goat which frequent the mountains of this country, but more especially those of *Changthang*, and *Khoten*. Its price is very high, as the goat has not yet been tamed ; but, from an experiment made under my view, it is obvious that it is just as domesticable, as that which bears the common shawl-wool ; and as soon as I shall have returned from my journey, arrangements, for accomplishing this object, will be put in force. This, as well as the shawl-goat, may, with advantage to the peasantry, be transferred to a portion of the Himalaya, now unproductive ; but I much doubt, whether it be worth while, from the scanty yield of wool, on each carcase, to raise the breed on the poorest surface in Britain. I did not think thus, when I first obtained the shawl-goat ; but at that time, the Company possessed not its present extensive territories in the Himalaya, and their attendant facilities. France has, I learn from a correspondent in that country, obtained a flock from some of the steppes near the Caspian, which must be inferior to those of Tibet, as lately *A'ghá Aabdí* was employed by Russia itself, to procure the breed from the border of Chinese Turkistan. The latter gives wool by no means so fine as that of the province of *Changthang*, which touches upon, or rather, is separated from the Honourable Company's Hill Provinces, by a tract of uninhabited border, only four days journey in breadth. Through the interest which I now possess in the Trans-Himalayan countries, I could procure thousands of the best breeds, within a few months.

In the eastern part of this principality, there is a nondescript wild variety of Horse, which I shall call *Equus Kiáng*, perhaps more nearly allied to the ass than to the horse, in some particulars, but differing from the *Gürkhar* of

* A specimen of this fine wool, which is of a brown colour, was transmitted by Mr. MOORCROFT to Mr. FLEMING, and presented by the latter to the Royal Asiatic Society, in whose Museum it is deposited. *Secretary.*

Sind ; of which I obtained a female of great beauty. It is an animal, which, excepting its ears, resembles more an antelope, in the beauty of its eye, and the vivacity of its movements, than the sluggish animal with which it is classed ; though unquestionably of the same family with the ass.

I bought above a hundred sheep and eight asses to carry provisions, for a party of sixteen persons, for two months, to proceed to *Skayjúng*, with a view of shooting some *Kiangs*. I traversed a pass in which the snow reached to my horse's hips, lost one valuable servant by the cold, and reached the *Kiang* country, after eighteen days march, when I received an express, directing me to return immediately, to meet a deputation of persons from the Chinese authorities of Yarkund, arrived at Lek. As I was on horseback on my return, within an hour after the receipt of the advice, I gained no other advantage by the journey than an opportunity of making out a part of the old commercial line, between *Nejibábád* and *Khoten*, frequented in the reign of *Shah Jehan*, and closed by the Chinese, subsequently to their acquisition of the state of *Kashgar*, by the expulsion of the Musleman *Khaja*, whose heir, *Jehángír Khaja*, is now in attendance at the Court of *Omar Khan*, the sovereign of *Fingbara*. I ought to add, perhaps, as another result of my researches, the tracing of the line of the army of the *Sokpos*, or *Calmucks*, when they invaded *Ladakh*, in the reign of *Alemgír Aurengzeb* ; and farther, some geographical facts, and the discovery of a nondescript variety of Grouse, and Partridge. Not more than a dozen *Kiangs* came within view, and all were out of shot. A native of that district was directed to lie in wait, and a suitable remuneration was offered for the skin, head, and organs of voice, for dissection. The man has completed his task, and I shall have these matters, as soon as the pass of *Changlung* will admit of being traversed. The *Kiang* appeared to me to be about fourteen hands high, of a round muscular form, with remarkably clean limbs. I would have given my reasons for thinking its domestication, for the use of the small farmer, and of the poor in Britain, desirable ; but the recital would lead to too much of detail at present.